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RADAR RANGE CALIBRATOR

SYSTEM EVALUATION REPORT

Federal Electric Corporation Vandenberg AFB, Calif. 93437

2 December 1976

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Prepared for

SPACE AND MISSILE TEST CENTER Vandenberg AFB, Calif. 93437

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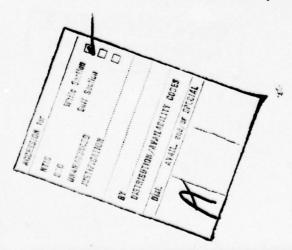
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Supervisor

FOR THE COMMANDER

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Director of Plans, Programs & Resources



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,	The Radar Range Calibrator System was installed AN/FPQ-6 radar during September 1976. The system a target at a known range using digital technique system is presented in this report.	at the Pillar Point m is capable of generating

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4.0 SYSTEM LEVEL TESTS

Radar data from GEOS III tracking missions were used to evaluate the RRCS from the system level, i.e., does the RRCS accurately calibrate the range measurements of the radar? Table I provides the results of this testing.

Table I
System Level Test Results
AN/FPQ-6

	GEOS III	d distribution of the last
Date	Rev No	Range Bias (Ft)
24 Aug 76	7114	-5
25 Aug 76	7128	Bad site tape
27 Aug 76	7157	9
1 Sep 76	7228	16
3 Sep 76	7242	-4
10 Sep 76	7356	16
11 Sep 76	7441	Bad site tape
20 Sep 76	7498	-3
30 Sep 76	7626	of fur a stable serve.
14 Oct 76	7825	9
	Mean (Ft)	2.6
	Std. Dev. (Ft)	10

These biases are defined as the radar measurement minus the NSWC reference orbit and are indicative of excellent range zero set capability. The accuracy of the NSWC ephemerides used for the reference standard are not known other than NSWC quotes of 5 meters or better. A test to test variability in the reference data of up to 10 feet at the one sigma level is not unreasonable.

5.0 DETAIL LEVEL TESTS

The following tests were performed on site by Performance Analysis during October for purposes of establishing the RRCS baseline capabilities:

a. Stability of range calibration lock-on as a function of signal level.

FPQ-6 Radar Range Calibrator System

1.0 INTRODUCTION

In August of 1976 the Radar Range Calibrator System (RRCS) was installed at the FPQ-6 under Engineering Task CET-ER-606. The evaluation of the RRCS was conducted in two phases: testing and evaluation conducted by the Instrumentation Systems Engineering Department (IC400) and testing and evaluation conducted by the Performance Analysis Department (PA300). This report documents the evaluation conducted by the Performance Analysis Department and is intended to define, both the baseline accuracy of the RRCS and its operational usage.

Results of the evaluation show that except for minor discrepancies, the calibrator is accurate and it is recommended that it be used during operational support.

2.0 RANGE CALIBRATION MODIFICATION

The range calibration modification at the FPQ-6 was installed to provide the radar system with a calibration method which would minimize the errors which occur in the range measurements due to pulse width mismatch conditions and due to pulse shape distortion caused by clutter and multipaths using an external range target. Basically the pulse width mismatch error occurs when the radar pulse width and corresponding return from the range target is not equal to the pulse width of the signal return from the C band transponders carried aboard ballistic missiles launched from Vandenberg Air Force Base. The form of the error and the model for correction are reported in Range Bias Corrections, report number PA100-75-40, 3 August 1976 and will not be covered in this report.

3.0 EVALUATION APPROACH

Two levels of testing and evaluation were conducted by the Performance Analysis Department. The first consisted of system level tests conducted in association with GEOS III tracking missions and the second a series of tests conducted on site specifically designed to detect potential error sources and define the capabilities of the modification.

- b. Linearity of the range calibrator.
- c. Width, stability and rise-fall time of output pulse.
- d. Ability to lock-on radar beacons at a known range after calibrating on the RRCS.

5.1 OUTPUT PULSE EVALUATION

The RRCS output pulse was evaluated with the use of a Hewlett-Packard 7844 (7824/7880/7885 plug-ins) oscilloscope. The 30 MHz output (J-4) was displayed as shown in Photo #1 (Figure 1). In this photograph the pulse is displayed on three traces. The sweep speed on the top trace is 200 nanoseconds per centimeter. The entire pulse appears again on the second and third traces at a sweep rate of 50 nanoseconds per centimeter. The trigger time on the second and third traces have been adjusted so that the leading edge of the pulse on the second trace just coincides with the trailing edge of pulse on the third trace. The difference in trigger time is presented digitally as Δ 0.136 µsec at the bottom on the oscilloscope. This feature permits a high degree of resolution for measurement of pulse widths.

5.1.1 RISE TIME

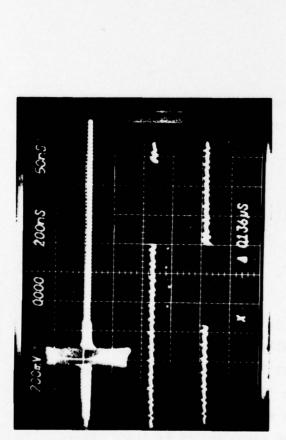
The rise and decay time of the output pulse was observed to be very fast. Something less than five nanoseconds may be observed in the photograph.

5.1.2 WIDTH STABILITY

Pulse width stability appears good. Instability was not observed at a measurable level.

5.1.3 PULSE WIDTH BIAS

The width of output pulse shown in photo #2 is the minimum width available and was measured as 126 nanoseconds. Initially the bias was believed to be 136 nanoseconds as shown in photo #1. It was later determined that the 12 nanosecond switch operates in reverse if the "Range" switch is in the "up" position (as it was during the test). Photo #1 was taken with the 12 nanosecond switch in the "off" position while the range switch is "up". Photo



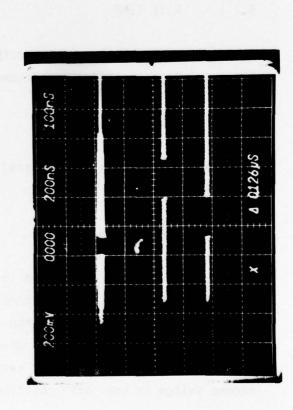
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200ms

0000

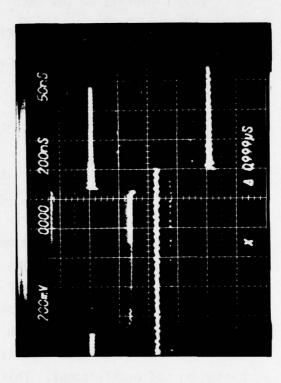
200E.V





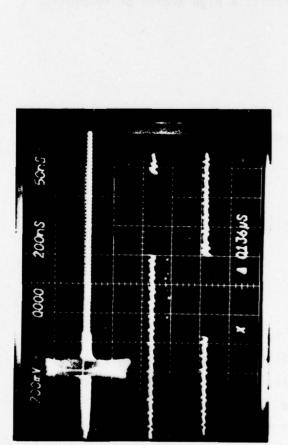
PH0T0 3

≥ 4 Q136µS

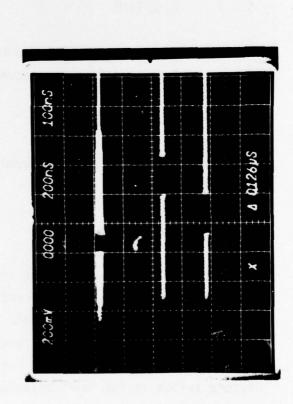


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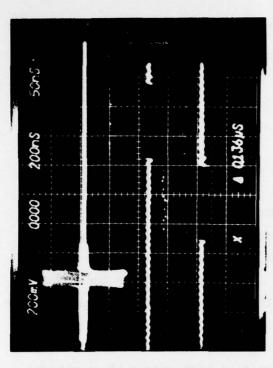
PH0T0 2



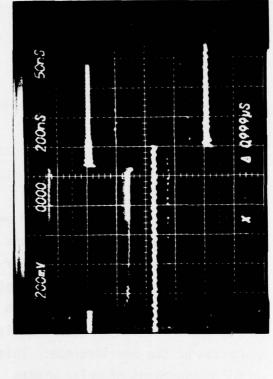
PH0T0 1



PH0T0 4



PH0T0 3



PH0T0 2

#3 shows the result of moving the range switch down while the 12 nanosecond switch is unchanged. The leading edge of the pulse has shifted 12 nanoseconds in photo #3, as it should, but the width has also changed. When the range switch is in the "down" position the operation of the 12 nanosecond switch is proper.

The initial calibration of the RRCS was accomplished with the range switch in the "up" position. Therefore, the 12 nanosecond switch was labelled "reversed" on the front panel to correct the problem. This will present no problems in the operation of the unit until such time that a permanent correction can be made.

5.1.4 PULSE WIDTH ACCURACY

All pulse width switches were operated independently and the width of each pulse was measured and recorded on the data sheet (Appendix A). After subtracting the bias of 126 nanoseconds from the measured widths the mean of the differences (measured change minus expected change) is zero indicating that the 126 nanosecond bias is valid. The standard deviation is 3.2 nanoseconds. A 3 nanosecond error in pulse width calibration represents an error of 0.75 ft in range which is insignificant.

Switches were used in combinations to generate pulse widths of .25, .5, .75 and 1.0 μ seconds. The 1 μ sec pulse is shown in photo 4.

5.2 LINEARITY OF PULSE POSITIONS

The RRCS pulse (range) position switches were set to the 100 k yd position. The pulse was gated at the radar and placed in auto track mode. The radar console display indicated 100,000 yds with occasional indications of 99,999 yds (1 yd low). The RCM was switched to provide a pulse at range of 200 k, 300 k, ... 1,000 k yds. The radar always read the correct range when locked on the target. Lock-ons were also made at 25 k and 50 k with the same result. Linearity was excellent as expected (see data sheet Appendix A).

5.3 STABILITY OF RANGE LOCK-ON AS A FUNCTION OF SIGNAL LEVEL

An RF attenuator was placed between the Watkins/Johnson mixer and the 40 db directional coupler (10 A6A24) located in the RF head. The radar was locked

on the RRCS output at a range of 100 k yds. The console display indicated 100,001 yds, occasionally reading 100,003 yds with no attenuation. Attenuation was inserted in steps of 5 db.

AGC voltage and console range display readings were recorded on the data sheet (Appendix A). The radar range was observed not to change over a 50 db attenuation range. The AGC voltage which should have continued to change until the noise level was reached did not decrease beyond the 30 db level (well above the noise floor). Since the attenuation did not effect the signal beyond 30 db, leakage was suspected. It was determined that the signal was present at the receiver even when the input to the attenuator was disconnected.

The RF leakage problem did not appear to produce adverse effects when the range calibration system is being used. The Instrumentation Systems Engineering Department is aware of this problem and has provided new cabling.

5.4 RADAR BEACON TESTING

The USAF Geodetic Survey Squadron was asked to determine the range between the radar pedestal and a selected position on Montara Peak. Two C band beacons were operated at the surveyed position while the radar tracked and recorded range data. The radar was calibrated using the RCCS and the pre operation parameters for each beacon as shown in Table II.

Lock-on values for both beacons are tabulated below.

	Radar Lock-on (yds)	Corrected Lock-on (yds)	Beacon Survey (yds)	Corrected Lock-on minus Survey (yds)
174C	8040.8	8045.5	8043.3	+2.2
302C	8045.4	8054.4	8043.3	+11.1

Corrections were made (see Appendix A) for beacon delay errors, cable delay between beacon and antenna, and pulse width errors. Pulse width set at the radar was based on preoperation beacon tests. Corrections were based on the mean of pre and postoperational beacon test data.

Table II AN/FPQ-6

Pre Operation Measurements

Beacon Parameters

(SAMTEC Form 89 were completed (pre-and post test) and are included in Appendix A)

	Motorola 174C (coho)	Vega 302C
Ser #	103	3150
Delay (-20 dbm)	2.501 µsec	2.49 µsec
PW	.927 μsec	.535 μsec
Real Time	.077 μsec	.011 µsec
Fall Time	.041 µsec	.025 μsec
Date	3 Aug 76	29 Sep 76

Post Operation Measurements

Delay (-20 dbm)	2.507 µsec	2.47
PW	.983 μsec	.535
Rise	.013 µsec	.013
Fall	.020 µsec	.051
Date	8 Nov 76	3 Nov 76

Actual beacon delay used at the radar was 2.573 μ sec (422 yds) on the 1740 beacon and 2.561 μ sec (420 yds) on the 3020 beacon.

6.0 GENERAL OBSERVATIONS

Site personnel stated that the RRCS caused interference, which is noticable on the range scope at the operators console, even though power to the RRCS is turned off. It can be eliminated by disconnecting the 30 MHz input to the RRCS. Interference of this nature was not observed during the evaluation period. Engineering (IC400) is aware of the problem and intends to investigate. It is recommended that the power be removed from the RRCS and the 30 MHz input be disconnected at the source when the system is not in use to preclude interference of this type.

7.0 OPERATIONAL TESTING

Data was recorded during support from Operations 8080, 6995 and 1160 for purposes of obtaining range data recordings at pulse widths used during Minuteman support. The radar range was zero set and the beacon delay adjusted using the range target and the radar transmitter. Data recordings were then made of the skin gate and beacon gate measurements while tracking the RRCS signal. Table III is a summary of the results obtained during those operations. As may be seen from the Table the data obtained from the RRCS agreed very well with theoretical values. All lock-on values for Operation 6995 were short by 14 yards with respect to the RRCS. Data for GEOS III operations previous and subsequent to Operation 6995 have been examined but no errors were detected. The cause for all RRCS values being short by 14 yards could not be isolated.

TABLE III FPQ-6 RADAR RANGE CALIBRATOR SYSTEM OPERATIONAL EVALUATION

B-A B-A MEAS THEOR	(FE)	30 25	35 34
BEACON DELAY FROM RRCS	(Ft)	1260	1255
BEACON DELAY FROM RANGE TGT	(FC) 1215	1230	1220
BEACON PW	0.89	06.0	98.0
X M	1.0	1.0	1.0
0P NUMBER	8080	9669	1160

Beacon gate data from RRCS obtained at beacon PW at 10 k yds. Skin gate data from RRCS obtained at TX PW at 10 k yds. NOTE:

APPENDIX A

						1 101			
MOSOLOLA	351174	0 10	23		STD K	-ML	101	U /U	
VEHICLE TYPE	FACILITY	WAFER S/	1	BAG	CK-UP TEST	DOCUMENT	CODE	NAME RI	U
	B 1801	-		-		F6.1.	1 -		
				1		OTAL TIME		DALLA CATELA	ST PERFORMED
TEST SET P/N	TEST SET S/N	BEACON		BEACO				LEE	
TSS	00/	ON		OFF		4.75	I N/A	COMP.	
ANTENNA . P/N	ANT. I S/N	ANT. 2 5/N	ANT. 3 5/	N COU	PLER P/N	COUPLER S	N BATT.	P/N BATT	. S/N DATED
				-			-		
	17.7								
TRANSMITTER		,				NAME OF TAXABLE PARTY.	(4.34 - 7.4 /	Total	
1. Time to See - Pv	r Delay Timer	1 2	30	Sec	23. Receive	r Bandwidth	@ 3 dB	8.1	MHz
		1			Low	Cns	11 36	Hi	
2. Time to Stabilize		0	_		F710	Max	64,30Fz	574	97
			0	Sec	5/60	· MHz	65. ZMHz	576	O. MHz
	(+3 min)	Start 57	63 <i>5</i> 5	MHz				Total	
3. Transmitter Frequ	iency (+10 min)	Finish 57		MHz	24. Receive	r Bendwidth	€ 60 dB		MHz
				MHz	Low	Cent	er	Hi	
4. Frequency Drift F	ate (MHz/min	Start O	,233				-		-
		Finish (0.0	MHz		MHz	MHs		MHs
			,/-				,	- 1	
5. Pulse Frequency	Jitter	1	110	MHz	25. Thresho	ld Sensitivity		- //	d Bm
		I .	227	Двес				Low	HI
6. Fulse Width		P.75	32A	Usec	26. Dynamic	Range		-15	- I
		@ 1.0 ·	927	µвес				-65 dBm	O dBm
200000000000000000000000000000000000000									
7. Pulse Width Jitter		,0	19		27. Image R	ejection		-39	dB
				изес				Low	Hi _
R. Pulse Amplitude 1	/ariation	1	10		28. Pulse W	idth Accepted	nce	1 2	23
		_ <	7.0	dB				Изес	L Moec
					an Decoder	Accept Limi	Low	Center	Hi
9. Pulse Amplitude J	itter .	40	2.0	dB		dBm	8.76	8.98 Here	9.2 uses
							Mase	Low	Hi
10. Pulse Rise Time		-	77		30. Decoder	Reject Limit	■ 0 -55 dBm	200	0 01
		,0	//	µес		-		8.673µ	9. 2 Tasec
					21 Decedes		40-	Pulse	CW //
11. Pulse Fall Time			41	Деес	31. Decoder	Immunity @ 0	abm	OK	NA
					TRANSPOND	DER	Market Comment		
12. Pulse R! Spectrum	6 6 dB BW	1.6			32. Random			NOW	
		1 . 6	>	MHz	32. Kandom	1 Egering			ppe
					11 Passyam	Time e 0 de			_
13. Reply Delay e -55	dBm	2,	498	Д • • • •	33. Macover	y time e o de		38	5 u
14 Delay Variation ve	Signal (dBm)	Absolute (34. Over-Inte	etrogation		370	-
15. Delay Jitter vs Sign	nel (dBm)	Absolute (1.052	, деес) ppo
02.495 -102.49	-20 2 501 -30	2.525 -40	2.568 -5	02.57				Product	
111,003 ,005				016	35. Maximum	Duty Cycle		100	3 4
					36. Operatin	- Current us	Valtage		Quiet
-572572 -60 ZAST				102565	Jo. Operatin	-		1 .5	
11,018 ,021	1025 .	034 ,	038.	055	24,68	26,68	A 28 .60	A 30 .68	A 32 . 68 A
16. Delay Variation vs		Absolute ,		Дзес	Vde	Vdc	Vde	Vdc	Vác 7/
		Absolute .		Деес	.71	71	1.7/	1.71	A Interg. A
17. Delny Jitter vs Fre						1			1
-1.52.498-12.499	52.502+.5	2.50 +1 2			37. Pressuria	ration Test	DAIA	☐ Go	No Go
11,017.018	.0/3	015 16	020	019					
18. Delay Variation va			,016	Heec	COHERENCY	1 18 18 18 18	MAN .	Std Dev.	Vel Accry
					Carrier F	hase Cohere	ncy	Hz	ft/sec
19, Delay Jitter ve PR			009	µ.er.		•			
1002,52/ 1602.59	320 2.589 640	2.52 1000	2:52 13	00.2.505	39. Carrier	Width @	3 dB		
111,015,016		24 ,0	21	013					Hz
20. Delay Variation vs		Absolute	.003				\		
					-40. Spectral	Skew @ ± 350	KH		dB
21. Delay Jitter vs Opr.			.009						- 48
0 F. 3 W OF	1 28251	30 25/	32 2,5		41. Interline	Noise (relate	(e)		
14 2,513 26 2.5		4.7	,019	9					dB
		,017	1,0,						
10,010,01		Xponder	1,00			/		Carrier	Interline A
	2 ,017	Xponder			42. Dynamic	Palse Specti	rum .	Δ	Δ
Jit , 010 , 01	2 ,017	Xponder /	70	Watte	42. Dynamic	Dalse Specti	rum	Δ Hz	<u>∆</u>
10,010,01	2 ,017	Xponder /			_/		rum	A Hz Low	A A
Jit , 010 , 01	2 ,017	Xponder /	70		_/	Tracking		Δ Hz Low - 🂪 MHz	HI + 5 MHz
Jit , O/O , O/ 22. Peak Power Outpu ANT. NO 1	ANT. NO 2	Xponder /	70 NO. 3	Watta	43. Frequence			A Hz Low	A A
Jit , 010 , 01	ANT. NO 2	Xponder / ANT.	NO. 3	Watts	43. Frequence	cy Tracking		Δ Hz Low - 🂪 MHz	HI + 5 MHz

1:0

	WATER SYN	COMENT COM	HAME A/U
B1801		PRIME RIFE, MAG. BU	RN-IN-DATE LAST PERFORM
TT5 0001	ON 1100 OFF 1		P/N HATT. S/N DATE
TPANSMITTER?		RECLIVER	Total
1 Time to See - Pwr Delay Timer	< 30 sec	23. Receiver Handwidth © 3 dB	11.7 MI
2. Time to Stabilize	180 sec	5759.5mHz 6525.3mHz	3771.2 M
3. Transmitter Frequency (+10 min		24. Receiver Bandwidth @ 60 dB	Total
4 Frequency Drift Rate (MHz/mi	Stort , 266 MHz		HI MI
5. Pulse Frequency Jitter	мнг	25. Threshold Sensitivity	L-69 a
6. Pulse Width	6.75 Q.2 3/ ilsec 6.75 Q.2 3/ ilsec 6.10 Q.9 3 Heec		Low C dBm O dE
7. Pulse Width Jitter	,0033 µsec	27. Image Rejection	d
8. Pulse Amplitude Variation	∠ 1.0 dB	28. Pulse Width Acceptance	Low >3.0μ.
9. Pulse Amplitude Jitter	40.5	29. Decoder Accept Limits 8.78	Center HI μους 9.2 μου
10. Pulse Rise Time	013 1	30. Decoder Reject Limits € =55 dBm	Low Hi
II. Pulse Fall Time		31. Decoder Immunity @0 dBm	Pulse CW NA
12 Pulse RI Spectrum # 6 dB BW	, 020 и нес	TRANSPONDER	
	2,2 MHz	32. Rendom Triggering 33. Recovery Time @ 0 dBm	NONE PI
Veriation vs Signal (dBm)	2.508 μετς Absolute0, 042 μετς		38 40
5. Delay Jitter vs Signal (dlim)	Absolute 0, 042 µsec	34. Over-Interrogation	3285
2.5/3-102.509-202.507-3	1/2 025 .025	35. Maximum Duty Cycle	Product
12,506-602,54 -622.524-6	52533 -672.542 -70 -	36. Operating Current vs Voltage 24,68 A 26,68 A 28,68	A 30 . 68 A 32 . 68
6. Delay Variation vs Freq. (MHz)	Absolute, 003 Haec	Vde Vdc Vdc	Vdc Vdc //
7. Delay Jitter vs Freq. (MHz) 1.52,50 -12,50252,502 +	Absolute(), 00 B µsec 52.505 +12.5 +1.52.50		A // A Interg.
it 1019 ,020 .020 1	0/2 ,0/2 .015 Absolute 0,014 Heec	COHERENCY	Std Dev. Vel Accry
o. Delay Jitter vs PRF (pps)	Absolute 0.011 place	38. Carrier Phase Coherency	Hz ft/se
002.516 1602.515 320 2.514 640	025 .014 .014	89. Carrier Line Width @ 3 dB	н
O. Delay Variation vs Opr. Voltage 1. Delay Jitter vs Opr. Voltage	Absolute 0,004 µsec	-40. Spectral Skew # ± 350 KHs	
12.504 262.507 282.502	302523 327.503	41. Interline Noise (relative)	
1.015 .016 .014			Carrier A Interline
	Xponder 105	42. Dynamic Pulse Spectrum	
2. Penk Power Output	105 Watts	43. Frequency Tracking	Low Hi
2. Penk Power Output	105 Watts	43. Frequency Tracking	Hz di

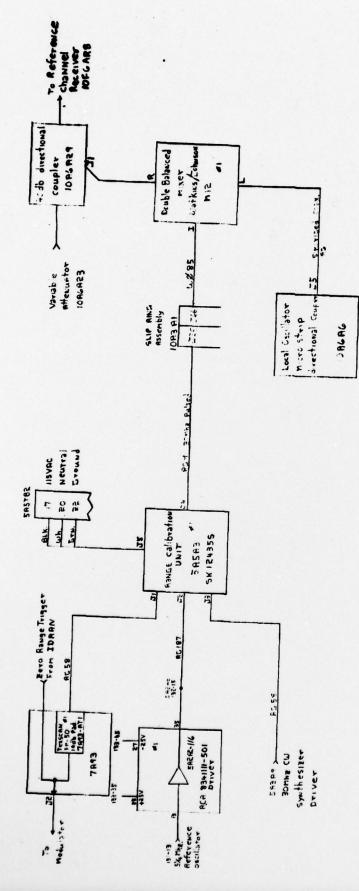
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TRANSMITER		1	30			7		Total	,
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2 Time to Stabilize		1	80	Sec		548 MHz 54	39.5 MHz 39.7 MHz	549	4.2
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4. Frequency Drift F	Rate (MHz/min)	Start C	0.33		Low	Center	MHz	н	- M
5. Pulse Frequency	Jitter	^	VA	мнг	25. Thresho	old Sensitivity		-68	
6. Pulse Width		€ 0.5 €.75).539 2.533	μsec μsec	26. Dynami	Renge		-63 _{dBr}	Hi
7. Pulse Width Jitter	,	@1.0	004	μεες	27. Image R	lejection		- dBn	<u> </u>
8. Pulse Amplitude V	Variation	1	1.0	μеес	28. Pulse W	idth Acceptant	ce	Low / 2	Hi
9. Pulse Amplitude J	Jitter		0.5	ф	29. Decoder	Accept Limits	4.76.c	<.2 μ sec Center 4.98 μ sec	Hi
0. Pulse Rise Time			,	dB		Reject Limits		Low	HI
1. Pulse Fall Time			0//	μιες	31. Decoder	Immunity @0	dBm	Pulse OK	5.2/µ
		1	25	ивес	TRANSPON	DER	Stand Colored		
2. Pulse RJ Spectrum	n 0 6 dB BW	2	2.2	MHz	32. Random			Non	JE,
3. Reply Delay @ -55	dBm	2	.48	µ вес	33. Recover	y Time @ 0 dBr	n	45	μ,
Delay Variation vs 5. Delay Jitter vs Sign			0.19	µес	34. Over-Int	etrogetion		29	20
					35 Marimum	Duty Cycle		Product	15
2.49 -10 2.49				A A 7	JJ. MEXIMON			.00	113
2.49 -102.49	,005 ,	004 10	38	70-		g Current vs V		TWI	Quiet -
2.49 -102.49 10.005.005 12.48 -602.50	005,005,005,005,005,005,005,005,005,005	2.57-67	2.67 -: 139	70—	36. Operation	Current ve V	28 .7	A 30 . 7	Quiet 7
2,49 -102,49 11,005,005 172,48 -602,50 1,0/0 .0/2 1,0/0 .0/2 1,0/0 variation va 1, Delay Jitter va Fre	7,005,005,005,005,005,005,005,005,005,00	2,5) -67; 2,5) -67; Absolute (Absolute (03B 267 - 139 0.01 0.006	70— 	36. Operation	Current ve V	28 .7	TWI	Quiet 7
2,49 -102,49 it,005.005 i72,48 -602,50 i,010 012 5. Delay Variation va 7. Delay Jitter va Fre 1.524) -12,47	7,005,0 622,52-65 1027,0 Freq. (MHz) q. (MHz) 52,47 +.5	2.5) -67 2.5) -67 0.5 Absolute (Absolute (2.48 +1 2	2.67 -: 139 0.01 0.08 +	1.52.47	36. Operatin 24 • 7 Vde 85	Vdc . O S A	28 .7 Vdc .85	A 30 . 7	Quiet 7 32 · 7 Vdc A Inter 8.5
2,49 -102,49 it,005.005 572,48 -602,50 1,010 -012 5. Delay Variation va 7. Delay Jitter va Fre 1.5247 -12.47 it,008 .008	Freq. (MHz)5 2,47 +.5	2,5) -67; Absolute (Absolute (2,48 +1 2 0) Absolute (038 , 267 - 139 0.01 0.006 0.48 - 008 ,	1.5247 Ο / 2	36. Operation 24 • 7 Vdc 85 37. Pressuri	Current vs V 26 · 7 A Vdc Vdc Zation Test	28 .7 Vdc .85	130.7 Note 85	Quiet 7 32 7 Vdc 85 A Interest No G
2,49 -102,49 it,005.005 i72,48 -602,50 i,010 .012 5. Delay Variation va 7. Delay Jitter va Fre it,008 .008 3. Delay Variation vs p. Delay Jitter vs PR	Freq. (MHz)5 2,47 +.5 .006 .00 PRF (pps) F (pps)	2.5) -67; Absolute Absolute Absolute Absolute Absolute	2.67 -: 129 0.01 0.08 0.08 0.03	1.5247 Ο/2 μεες μεες 1.5247 Ο/2 μεες μεες	36. Operation 24 • 7 Vdc 85 37. Pressuri	Vdc . O S A	28 .7 Vdc .85	A 30 . 7 A . 65 □ Go	Quiet 7 32 7 Vdc A Interp 5
2,49 -102,49 it,005,005 it,000,002 it,010,002 it,010,002 it,010,002 it,010,003 it,010,00	Freq. (MHz) q. (MHz)5 2,47 +.5 ,006 ,0 PRF (pps) F (pps) 320 2,47 640	2.52 -67; 2.52 -67; 2.52 -67; Absolute (2.48 +1 2.20) Absolute (4.20) Absolute (2.47 1000)	2.67 -: 139 2.00 0.00 0.00 0.03 0.03 0.03	1.5247 Ο/2 μεες μεες 1.5247 Ο/2 μεες μεες	36. Operation 24 • 7 Vdc 85 37. Pressuri COHERENC	Current vs V 26 · 7 A Vdc Vdc Zation Test	28 .7 Vdc , 85	A 30 . 7 Vdc Go Std Dev.	Quiet 7 32 7 Vdc A Interp 5
2,49 -102,49 it,005,005 it,000,005 it,010,002 it,010,002 it,010,003 it,010,00	Freq. (MHz) q. (MHz)5 2,47 +.5 ,006 ,0 PRF (pps) F (pps) 320 2,47 640 ,006 ,0	2.52 -67 3 4 5 6 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	2.67 -: 139 2.00 0.00 0.00 0.03 0.03 0.03 0.03	μ sec 1.5247 0/2 μ sec μ sec 0/2 μ sec 0/2 0/2 0/2 0/2 0/2 0/2 0/2 0/2	36. Operation 24 • 7 Vdc 65 37. Pressuri COHERENCE 39. Carrier	Current vs V 26.7 A Vdc Vdc Vdc Vdc Vdc Vdc Vdc Vdc Vdc Vdc	28 .7 Vdc .85 N/A	A 30 . 7 Vdc Go Std Dev.	Quiet 7 32 7 Vdc 85 Interes 85 Vel Accry
2,49 -102,49 it,005.005 72,48 -602,50 7,2,48 -602,50 7,010 .012 7,010 play Variation vs 7,010 play Jitter vs PR 15,24) -12,4) it,008 .008 8,010 variation vs 10,010 play Jitter vs PR 10,02,47 1602,47 11,008 .008 11,010 play Variation vs 11,010 play Variation vs 12,48 262,47	Freq. (MHz) -52,47 +.5 -006 ,0 PRF (pps) F (pps) -007, Voltage Voltage 8 28 2.48	Absolute (Absolute (2.48 + 1.20)	2.67 = 129 129	1.52.47 0/2 μ sec 1.52.47 0/2 μ sec 0 μ sec 0 μ sec 1 μ s	36. Operation 24 • 7 Vdc 95 37. Pressuri COHERENC 39. Carrier 39. Carrier	Zation Test Phase Coheren Line Width @ 3	Vdc ·85 N/A cy dB	A 30 . 7 Vdc Go Std Dev.	Quiet 7 32 7 Vdc A Interp. 5 No G Vel Accery
2,49 -102,49 it,005,005 it,005,005 it,010,012 it,010,012 it,010,012 it,010,012 it,010,012 it,010,013 it,010,01	Freq. (MHz) 5 2,47 +.5 .006 ,0 PRF (pps) F (pps) 320 2,47 640 .006 ,0 Opr. Voltage Voltage 8 28 2.48	2.5) -67; Absolute (Absolute (Absol	2.67 -: 139 -: 0.01 -: 0.08 -: 0.08 -: 0.08 -: 0.08 -: 0.09 -: 0.00	μ ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο	36. Operation 24 • 7 Vdc 55 37. Pressuri COHERENC 39. Carrier 40. Spectral	Zetion Test Phase Coheren Line Width @ 3	Vdc · 85 Vdc · 85 V/A	A 30 . 7 Vdc Go Std Dev.	Quiet 7 32 7 Vdc 85 Interes 5
2,49 -102,49 it,005,005 572,48 -602,50 it,010 .012 6, Delay Variation vs 7, Delay Jitter vs Fre 11.524) -12.4) it,008 .008 8, Delay Variation vs 10, Delay Jitter vs PR 102,47 1602,47 11,008 .008 11, Delay Variation vs 11, Delay Jitter vs Opr 12, 48 262,4 11,007 .00 2. Penk Power Outpu	Freq. (MHz) 5 2,47 +.5 .006 ,0 PRF (pps) F (pps) 320 2,47 640 .006 ,0 Opr. Voltage Voltage 8 28 2.48	2.5) -67; Absolute (2.67 = 129 129	μ ε ε ε ε ε ε ε ε ε ε ε ε ε ε ε ε ε ε ε	36. Operation 24 • 7 Vdc 55 37. Pressuri COHERENC 39. Carrier 40. Spectral 41. Interline 42. Dynamic	Zation Test Y Phase Coheren Line Width @ 3 Skew @ 2560	Vdc · 85 Vdc · 85 V/A	Go Std Dev. Hz	Quiet 7 32 7 Vdc 85 Interes 5 Vol Accry
2,49 -102,49 it,005:005 it,005:005 it,010 -602,50 it,010 -012 it,028:008 it,008:008 it,0	PRF (pps) 320 2.47 640 Opr. Voltage Voltage 8 28 2.48 ANT. NO 2	2.5) -67; Absolute (2.67 -: 139 1.39 1.00 1.	μ ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο	36. Operating 24 * 7 Vdc 95 37. Pressuri COHERENC 39. Carrier 40. Spectral 41. Interline 42. Dynamic	Current vs V 26 7 Vdc Vdc Vdc Vdc Vdc Vdc Vdc Vd	28 .7 Vdc .85 N/A cy dB KHe	Go Std Dev.	Quiet 7 32 7 Vdc 85 Interes 5 Vol Accry

3. A

VE. GA	2017	- 31	50	14	STO K	1-1110	11	0.1716	7
VEHICLE TYPE	FACILITY	WAFER S	/N			DOCUMENT	CODE	NAME	R/U
	B1801	L				OTAL TIME	Tanas But	DAL IAL DA 75	LAST PERFOR
EST SET P/N	TEST SET S/N	BEACON		OFF					DATE
T 1 S	0001 ANT. 15/N	ANT. 2 S/N	ANT. 3 S/		PLER P/N	COUPLER S			ATT. S/N DAT
			-	-			" "	-/"	
RANSMITTER			~			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Total	100
1. Time to See - Pw	vr Delay Timer	<	30	Sec		r Bendwidth @			2.92
2. Time to Stabilize			180	Sec	5686.6	BMHz MS &	3.14MHz 92. DAHZ		99.6
3. Transmitter Frequ	(+3 min) (+10 min)	Stert Finish	5765			er Bandwidth @		Total	
. Frequency Drift R	Rate (MHz/min)	Start Finish	0.114	MHz MHz	Low	MHz	MHz	Hi	
. Pulse Frequency	Jitter			 MHz	25. Thresho	ld Sensitivity		-6	9
. Pulse Width		@ 0.5 @ .75 @ 1.0).535).535	µsec µsec µsec	26. Dynamic	Range		-64	dBm O
. Pulse Width Jitter			0015	µзес	27. Image R	ejection			
. Pulse Amplitude V	/ariation	<1		dB	28. Puise W	idth Acceptance	:e	L. W) HI 3
9. Pulse Amplitude J	itter	40	.5	dB	29. Decoder	Accept Limits	N/A	Center	Leec N/D H
). Pulse Rise Time			0/3	µsec	30. Decoder	Reject Limits		N/A	NA W
I. Pulse Fall Time			.051	Двес	31. Decoder	Immunity @0	dBm	N/A	NA
2. Pulse R! Spectrum	n 0 6 dB BW		,4	MHIZ	TRANSPONI	Triggering	(Sept. 1880)	NO	NE
		_			33. Recover	y Time # 0 dBn	,	4	
Reply Delay 9 -55	riBim	2	. 44	11000				T	
		Absolute	0.048		34. Over-Int	errogation			
Delay Variation vs Delay Jitter vs Sign	Signal (dBm)	Absolute (0.048	usec	34. Over-Int	ecrogation		3/s	55
Delay Variation vs Delay Jitter vs Sign 2,471 -102,423	Signal (dBm) nal (dBm) 3-20 2, 477 -30	Absolute (0.048	usec	34. Over-Int			3/s	
Delay Variation vs Delay Jitter vs Sign 2,47/ -102,47	Signal (dBm) nel (dBm) 3-20 2, 477 -30	Absolute (2,477 -40)	0.048 0.024 2.472 -	μος - μος 502.455 006	35. Maximum	Duty Cycle		3/1	55 0015
Delay Variation vs Delay Jitter vs Sign 2,471 -102,423 1.003 .004 12,44 -602,444	Signal (dBm) nai (dBm) -20 2, 477 -30 . 0 0 4 . 0 -62 2, 457 -65	Absolute (2,477 -40) 03 .4 (2,474-6) 017 .4	0.048 0,024 2,472 - 003 , 12,488 -	μος 502.455 006 70	35. Maximum 36. Operatin 24 0.65	Duty Cycle Current vs V 26 0.65	280.65	3/3 Product O. 6	55 0015 5 _A 320.6
Delay Variation vs Delay Jitter vs Sign 2,47/ -102,472 .003 .004 2,44 -602,444 .005 .010	Signal (dBm) 1-20 2, 477 -30 1.004.00 1.004.00 1.002.10	Absolute (2,477 -40) 03 .4 (2,474-6) 017 .4	0.048 0.029 02472 - 003 ,	и мес 502.455 006 70 —	35. Maximum 36. Operatin 24 0,65	Duty Cycle Current vs V 26 D.65 Vdc	28 0.65 Vdc	3/3 Product O. 6 A 30 O. 6 Vdc	55 0015 5 Quiet 5 320.6
Delay Variation vs Delay Jitter vs Sign 2,47/ -102,42 1,003,009 12,44-602,444 1,005,0/0 Delay Variation vs Delay Jitter vs Free	Signal (dBm) 1-20 2, 477 -30 1-20 2, 477 -30 1-20 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65	Absolute (2,477 -40) (2,474-6) (7 ,480) (4 Absolute Absolute (4 Ab	0.048 0.024 2.472 - 0.03 , 72.488 - 0.27 0.007	μος 502.455 006 70 — μος μος μος μος	35. Maximum 36. Operatin 24 0,65	Duty Cycle Current vs V 26 0.65	28 0.65 Vdc	3/3 Product O. 6 A 30 O. 6 Vdc	55 0015 5 Quiet 5 320.6
Delay Variation vs Delay Jitter vs Sign 2,47/ -102,42 1,003,009 12,44-602,444 1,005,0/0 Delay Variation vs Delay Jitter vs Free	Signal (dBm) 1-20 2, 477 -30 1-20 2, 477 -30 1-20 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65 1-62 2, 457 -65	Absolute (2,477 -40) (2,474-6) (7 ,480) (4 Absolute Absolute (4 Ab	0.048 0.029 2.472 - 0.03 , 12.488 - 0.27 0.007 0.000	μος 502.455 006 70 — μος μος 1.52.44	35. Maximum 36. Operation 24 0,65 Vde 0.85	Duty Cycle g Current vs V 26 0.65 Vdc O.85	28 0.65 Vdc 0.85	3/3 Product O.6 A 30 O.6	55 50015 5 A Quiet 5 A 320.6 Vdc O.8 Interg.
Delay Variation vs Delay Jitter vs Sign 2,47/ -102,473 1,003,004 72,44 -602,444 1,005,0/0 Delay Variation vs Delay Jitter vs Free 52,435 -12,433	Signel (dBm) 1-20 2, 477 -30 1-20 2, 457 -65 1-2	Absolute (2,477) -4(2) -	0.048 0.029 2.472 - 0.03 , 12.488 - 0.27 0.007 0.000 2.439 +	μος 002.455 006 70 — μος μος μος 1.52.44 006	35. Maximum 36. Operatin 24 0,65 Vde 0.85	g Current vs V 26 0.65 Vdc 0.85 Zation Test	28 0.65 Vdc 0.85	3/3 Product O. 8 A 30 O. 6 Vdc A O. 8	55 5015 5 A Quiet 5 A 320.6 5 A interg.
Delay Variation vs Delay Jitter vs Sign 2,47/ -102,473 1,003,004 12,44 -602,444 1,005,0/0 Delay Variation vs Delay Jitter vs Free 52,435-12,433 1,006.006	Signel (dBm) 1-20 2, 477 -30 1-20 2, 457 -65 1-22 2, 457 -65 1-22 457 -65 1-22 457 -65 1-32 457 -65 1-32 457 -65 1-32 435 + .5	Absolute (2,477) -4(2) -	0.048 0.029 2.472 - 0.03 , 12.488 - 0.27 0.007 0.000	μος 002.455 006 70 — μος μος μος 1.52.44 006	35. Meximum 36. Operatin 24 0,65 Vde 0,85 37. Pressuri COHERENC	g Current vs V 26 0.65 Vdc O.85 A zation Test	28 0.65 Vdc 0.85	3/3 Product O.6 A 30 O.6	55 50015 5 A Quiet 5 A 320.6 Vdc O.8 Interg.
Delay Variation vs Delay Jitter vs Sign 2,47/ -102,47 1,003,004 72,44 -602,444 1,005,010 Delay Variation vs Delay Jitter vs Free 52,435-12,433 1,006,006 Delay Variation vs Delay Variation vs	Signel (dBm) 1-20 2, 477 -30 1-20 2, 457 -65 1-22 2, 4	Absolute (2,477 -40)	0.048 0.029 2.472 - 0.03 , 12.488 - 0.007 0.007 0.000 2.439 + 0.034 0.034	μος - μος 502.455 006 70 — - μος μος 1.52.44 006 μος μος	35. Meximum 36. Operatin 24 0,65 Vde 0,85 37. Pressuri COHERENC	g Current vs V 26 0.65 Vdc 0.85 Zation Test	28 0.65 Vdc 0.85	3/3 Product O. 8 A 30 O. 6 Vdc A O. 8	5 5 0015 Quiet 320.6 Vdc.8 Interg. Vel Accry
Delay Variation vs Delay Jitter vs Sign 2,471 -102,42 1,003,009 72,44 -602,444 1,005,010 Delay Variation vs Delay Jitter vs Free 52,435-12,433 1,006,006 Delay Variation vs Delay Jitter vs PRI 2,432 1602,432	Signel (dBm) -20 2, 477 -30 -20 2, 457 -65 -0 0 4 . 6 -62 2, 457 -65 . 0 / 2 . 6 Freq. (MHz) 5 2,435 +.5 . 0 0 6 . 6 PRF (pps)	Absolute (2,477 -40) (2,474 -6) (2,474 -6) (1,77) (1,474 -6) (1,4	0.048 0.024 0.03 12488 0.007 0.007 0.007 0.007 0.007 0.007 0.007	μος 502.455 006 70 — μος μος μος μος μος μος μος μος	35. Maximum 36. Operatin 24 0.65 Vdc 0.85 37. Pressuri COHERENC	g Current vs V 26 0.65 Vdc O.85 A zation Test	28 0.65 Vdc 0.85 VN/A	3/3 Product O. 8 A 30 O. 6 Vdc A O. 8	55 0015 Quiet 320.6 Vdc.8 Interg. Vel Accry
Delay Variation vs. Delay Jitter vs. Sign 2,471 -102,425 1.003 .009 172,44 -602,446 1.005 .010 .Delay Variation vs. Delay Jitter vs. Free 52,433 -12,433 1,006 .006 .Delay Variation vs. Delay Jitter vs. PRI 102,432 1602,	Signal (dBm) -20 2, 477 -30 -20 2, 457 -65 -62 2, 457 -65 -012 / 6 Freq. (MHz) -52,435 +.5 -06 -6 -07 -6 -07 -6 -07 -6 -07 -6 -07 -6 -07 -6 -07 -6 -07 -6	Absolute (2,477 -40) (2,474-6) (2,474-6) (1,77) (1,474-6) (1,474-	0.048 0.024 0.03 12488 027 0.007 0.007 0.000 0.034 0.034 0.034	μος 002.455 006 70 — μος μος μος μος μος μος μος μος	35. Maximum 36. Operatin 24 0.65 Vdc 0.85 37. Pressuri COHERENC	Current vs V 26 0.65 Vdc O.85 A Zation Test	28 0.65 Vdc 0.85 VN/A	3/3 Product O. 8 A 30 O. 6 Vdc A O. 8	5 5 0015 Quiet 320.6 Vdc.8 Interg. Vel Accry
Delay Variation vs. Delay Jitter vs. Sign. 2,471 -102,423 1,003,009 72,44 -602,444 1,005,010 Delay Variation vs. Delay Jitter vs. Free 1,006,006 Delay Variation vs. Delay Jitter vs. PRI 1,006,006 Delay Jitter vs. PRI 1,006,007 Delay Jitter vs. PRI 1,006,007	Signal (dBm) 1-20 2, 477 -30 1-20 2, 477 -30 1-20 2, 457 -65 1-20 2, 457 -65 1-20 2, 457 -65 1-20 2, 457 -65 1-20 2, 437 -640 1-20	Absolute 2,477 -40 2,474 -6 2,474 -6 2,474 -6 2,474 -6 2,439 +12 Absolute	0.048 0.029 2.472 - 0.03 12.488 - 0.007 0.007 0.000 0.034 0.034 0.034 0.007	μος 1006	35. Maximum 36. Operatin 24 0.65 Vdc 0.85 37. Pressuri COHERENC	Current vs V 26 0.65 Vdc O.85 A Zation Test	28 0.65 Vdc 0.85 VN/A	3/3 Product O. 8 A 30 O. 6 Vdc A O. 8	5 5 0015 Quiet 320.6 Vdc.8 Interg. Vel Accry
Delay Variation vs. Delay Jitter vs. Sign 2,47/ -102,472 t.003,004 72,44 -602,444 t.005,010 p. Delay Variation vs. Delay Variation vs. Delay Jitter vs. PRI 02,432 1602,432 1602,432 1.005,007 p. Delay Jitter vs. PRI 02,432 1602,432 1602,432 1.005,007 p. Delay Jitter vs. Opt.	Signel (dBm) 1-20 2, 9.77 -30 1-20 2, 9.77 -30 1-20 2, 9.77 -65 1-22 2, 9.57 -65	Absolute 2,477 -40 2,474 -6 2,474	0.048 0.024 0.03 12488 0.007 0.007 0.000 0.034 0.034 0.034 0.007 0.007	μος 1006	35. Maximum 36. Operatin 24 0,65 Vdc 0,85 37. Pressuri COHERENC 39. Carrier 39. Carrier	g Current vs V 26 0.65 Vdc O.85 A zation Test V Chase Coherent Skew # 2 350	28 0.65 Vdc 0.85 WN/A	3/3 Product O. 8 A 30 O. 6 Vdc A O. 8	5 5 0015 Quiet 320.6 Vdc.8 Interg. Vel Accry
Delay Variation vs. Delay Jitter vs. Sign 2,471 -102,423 t.003,004 72,44 -602,444 t.005,010 b. Delay Variation vs. Delay Jitter vs. Free 1.52,433 t.006.006 t. Delay Variation vs. Delay Jitter vs. PRI 02,432 1602,432 t.005,007	Signal (dBm) 1-20 2, 9.77 -30 1-20 2, 9.77 -30 1-20 2, 9.77 -30 1-20 2, 9.77 -65	Absolute 2,477 -40 2,474 -6 2,474	0.048 0.024 2.472 - 0.03 , 72.488 - 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007	μος 1006	35. Maximum 36. Operatin 24 0,65 Vdc 0,85 37. Pressuri COHERENC 39. Carrier 39. Carrier	p Duty Cycle g Current vs V 26 0.65 Vdc O.85 A Zation Test Y Phase Coherent	28 0.65 Vdc 0.85 WN/A	3/3 Product O, 8 A 30 O.6 Vdc A O.8 Go Std Dev.	55 00/5 Quiet 5 A 320.6 Vdc 0.8 Interg. No Vel Accry
Delay Variation vs. Delay Jitter vs. Sign 2,47/ -102,472 tr. 003,004 tr. 005,010 tr. 005,010 tr. 005,010 tr. 005,010 tr. 005,010 tr. 006,006 tr. 006 tr. 006 tr. 006 tr. 006 tr. 006 tr. 007	Signel (dBm) 1-20 2, 977 -30 1-20 2, 977 -30 1-20 2, 977 -30 1-20 2, 977 -65 1-22 2, 957 -65 1-22 2, 957 -65 1-22 2, 957 -65 1-22 2, 957 -65 1-22 2, 957 -65 1-22 2, 957 -650 1-22 2,	Absolute 2,477 -40 003 ,6 2,474-6 0/7 ,4 Absolute Absolute Absolute Absolute Absolute Absolute Absolute 302,444	0.048 0.024 2.472 - 0.03 , 72.488 - 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007	μος 102.455 006 70 — μος μος μος μος μος μος μος μος	35. Meximum 36. Operatin 24 0,65 Vde 0,85 37. Pressuri COHERENC 39. Carrier 39. Carrier 40. Spectral	g Current vs V 26 0.65 Vdc O.85 A zation Test V Chase Coherent Skew # 2 350	28 0.65 Vdc 0.85 WN/A	Product O. 8 A 30 O. 6 Vdc A O. 8 Go Std Dev.	5 5 0015 Quiet 320.6 Vdc.8 Interg. Vel Accry
	Signel (dBm) 1-20 2, 977 -30 1-20 2, 977 -30 1-20 2, 977 -30 1-20 2, 977 -65 1-22 2, 957 -65 1-22 2, 957 -65 1-22 2, 957 -65 1-22 2, 957 -65 1-22 2, 957 -65 1-22 2, 957 -650 1-22 2,	Absolute 2,477 -40 0 3 , 6 2,474-6 0 7 , 6 Absolute 2,439 +12 0 7 , 6 Absolute Absolute Absolute Absolute 3,41/100 0,66 , 6 Absolute	0.048 0.024 2.472 - 0.03 , 72.488 - 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007	μος 1006	35. Maximum 36. Operatin 24 0,65 Vdc 0,85 37. Pressuri COHERENC 39. Carrier 40. Spectral 41. Interline 42. Dynamic	p Duty Cycle g Current vs V 26 0.65 Vdc O.85 A zation Test Phase Coherent Noise (relative	28 0.65 Vdc 0.85 WN/A	Product O, 8 A 30 O.6 Vdc A O.8 Go Std Dev.	OO/5 Quiet 320.6 Vdc. 8 Interg. Vol Accry Hz Interline
Delay Variation vs Delay Jitter vs Sign 2,47/ -102,473 1,003,004 72,44 -602,444 1,005,010 Delay Variation vs Delay Jitter vs Free 52,435-12,433 1,006,006 Delay Variation vs Delay Jitter vs PRI 2,432 1602,432 1,005,007 Delay Variation vs Delay Jitter vs PRI 2,445 262,43 1,007,007 Delay Jitter vs Opr. 2,445 262,43 Delay Peak Power Output	Signal (dBm) 1-20 2, 477 -30 1-20 2, 477 -30 1-22, 457 -65 1-22, 457 -65 1-22, 457 -65 1-22, 457 -65 1-22, 435 +.5 1-24, 435 +.5 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-24, 437 -640 1-32	Absolute 2,477 -40 0 3 ,6 2,474-6 0/7 ,4 Absolute	0.048 0.024 0.024 0.03 1.2488 0.007 0.	μος 102.455 006 70 — μος μος μος μος μος μος μος μος	35. Maximum 36. Operatin 24 0,65 Vde 0,85 37. Pressuri COHERENC 39. Carrier 40. Spectral 41. Interline 42. Dynamic 43. Frequen	Duty Cycle g Current vs V 26 0.65A Vdc O.85A zation Test Phase Coheren Skew # 2 350 Noise (relative	28 0.65 Vdc 0.85 W/A Cy dB	Product O, 8 A 30 O.6 Vdc A O.8 Go Std Dev.	OO/5 Quiet 320.6 Vdc. 8 Interg. Vol Accry Hz Interline dz Hi



The second secon

Note: Is Added to existing System

Raday Fange Ca state. System AN/ FFS-s Serg P.

COPY AVAILABLE TO DDG DOES NOT PERMIT FULLY LEGIBLE PRODUCTION

5

Delay in lead edge of pulse with respect to sweep start (if any)

____nano sec

5,7,9 47, 8,9,10

6,8,10 7,9

Switch selected (one only)	Measured Width	Nominal Width (nano	sec) 🛆
5-3	1651	1525	-1
5-4	892	763	+3
5-5	511	381	+4
5-6	319	191	+2
5-7	222	95	+1
5-8	173	48	- 1
5-9	144	24	-6
5-10	136	12	-2
None	126		₹3.2
Switch Combinations	Measured Width	Nominal Width µsec	
4,6,0 4,7,10	, 999	1.0	
-5 through To 5,6,8	.749	.75	

, 497

,247

.5

.25

RCM Range Position (yds)	Console Range (yds)
100K	100,000 -1
200K	200,000 -1
300K	300,000 -1
400K	400,000 -1
500K	500,000 -1
600K	600,000 -1
700K	700,000 -1
800K	800,000 -1
1000K	1,000,000 -1
50K	50,000 -1
25K	35,000 -1

B12 and B14 switch positions after initial calibration

15678 off

B

Attenuation (db)	Console Range (yds)	Nominal(yds)	AGC Volts
0	100,001	100K	6
5	100,001 -3	100K	5.7
10	100,003-1	100К	5,3
15	100,001-3	100К	4.95
20	100,001-3	1όοκ	4.6
25	100,001	100К	4.4
30	100,001	100К	4.2
35	10000	100К	4.1
40	100,001	100К	4.2
45	100,001	100К	4.2
50	100,001	100K	41

Corrections Applied to Radar Beacon Lock On Data

Corrections for 174 beacon

- +11 yds for beacon delay error (used 2.573 instead of 2.503)
- -2.3 yds for pulse width calibrated for .927 instead of .955
- -4 yds for cable delay (between beacon and antenna)
- +4.7 yds Correction (Total)
- +8040.8 yds Measured with radar

8045.5 yds Corrected

Correction for 302 beacon

- +13 yds for beacon delay error (used 2.56 instead of 2.48)
 - O yds for pulse width
- -4 yds for cable delay
- +9 yds Correction (Total)
- 8045.4 Measured with radar

8054.4 yds Corrected